

ERGONOMICS DEMONSTRATION PROJECT

# Residential Care

October, 2002



## Introduction

The residential care industry is one of the 12 highest risk industries in Washington State for Work-Related Musculoskeletal Disorders (WMSDs). The industry code (SIC code 836) includes establishments primarily engaged in the provision of residential, social, and personal care for children, the aged, and special categories of persons with some limits on ability for self-care, but where medical care is not a major element. Residential care employers range from institutions for the mentally and developmentally disabled, to residential care homes such as adult family homes, group homes, children's homes and institutions for the blind.

Rainier School is a Department of Social and Human Services (DSHS) facility and is the largest Washington state employer in this industry group. It is a state residential care facility for approximately 420 mentally and developmentally disabled residents. Historically, the Rainier School has the highest number of WMSDs in this industry group each year.

In April 2001, Department of Labor and Industries ergonomists contacted DSHS safety personnel about developing a demonstration project to help Rainier School to comply with the ergonomics rule. DSHS and Rainier School safety personnel believed the greatest WMSD risk exposure to their workforce was due to client lifting.

This document will summarize the activities, results, and recommendations of this project.

## Goals

After discussing this project with key people from DSHS and Rainier School, we agreed to the following goals for the project:

1. Evaluate jobs in two to three resident houses with the highest demand for client assistance and lifting. Determine caution zone jobs and analyze for hazards if indicated.
2. Evaluate work practices and controls since implementing a two-person lifting policy and introducing modern battery powered lifting equipment to determine their effectiveness in reducing risk factors for WMSDs.
3. Compare Rainier School lifting policy and practices with a similar DSHS facility, Fircrest School.

## Activities

1. Established mutually agreeable goals for the demonstration project
2. L&I ergonomists observed the primary work activities of attendant counselors (AC's) in Buckley House and 2010B House for morning and evening

shifts. The Rainier School staff determined these to be representative of the workers with potentially high-risk exposures. L&I ergonomists used visual observational methods and employee interviews to estimate relevant exposure frequency and duration.

3. Reviewed Rainier and Fircrest Schools' claims data
4. Conducted a focus group among Rainier School staff to gather employee information on what has helped to minimize WMSDs in the workplace.
5. Gathered site information and examples of controls used in residential care facilities to reduce heavy lifting and bent back exposures.
6. Observed and interviewed workers who perform resident handling and laundry activities at Fircrest School.

## Results

**The following results apply to the circumstances present at Rainier School during the observation days. The observed activities were typical of normal workdays.**

1. Two days of direct observation of attendant counselors by the L&I ergonomists confirmed that there were no caution zone jobs or hazard zone jobs.
2. Some exposure to heavy lifting and awkward postures to the back were found in these commonly performed tasks:
  - a. Manually lifting clients into and out of the bus seats
  - b. Stand pivot transfers
  - c. Dressing clients
  - d. Showering/cleaning clients
  - e. Laundry bag handling
  - f. Mopping
  - g. Bucket lifting

Heavy lifting and bent back exposures occur, but lack the duration or frequency exposure criteria to reach caution zone status. The total duration of back bending involved in the above listed tasks does not exceed two hours per day. Moderately heavy lifts (>55 lbs. and ≤75 lbs.) occur fewer than 10 times per day. Heavy lifts (>75 lbs.) were not observed except during bus loading activities.

Presently the bus is outfitted with only two wheelchair tie-downs systems. Staff generally takes five to eight clients off grounds for field trips, some of whom are wheelchair-bound. Attendant counselors manually lift some of these wheelchair-bound clients in and out of their wheelchairs onto bus seats. Because these field

trips happen only once per week, and bus field trip responsibilities are rotated to different staff members each week, this task occurs too infrequently to be covered by the ergonomics rule.

L&I did not find exposures to neck bending, arms overhead, squatting, kneeling, highly repetitive motions, excessive keying activities, repeated impacts, or vibration that would indicate caution zone jobs.

3. Rainier School personnel already use several ergonomic controls and good practices such as:
  - a. Modern lifting equipment (total body mechanical lift, adjustable tub gurney and tub
  - b. Sturdy rolling shower chairs with roll-in shower stalls
  - c. Team lifting
  - d. Job rotation
  - e. Job specific training
4. (next page)

## 4. Comparisons of Rainier School and Fircrest School

	Rainier School	Fircrest School
Total Number of Employees in 2001	935	695
Total Number of Residents	420	272
Number of Residents Needing Heavier Physical Care	48	105
Available Equipment to Reduce Heavy/Awkward Lifting	<ul style="list-style-type: none"> <li>▪ Battery-powered mechanical lifts introduced in 1996</li> <li>▪ Bath gurney lift with adjustable height tub</li> <li>▪ Rolling shower chair</li> <li>▪ Electric-powered controls for hospital beds</li> <li>▪ Powered lift on bus including wheelchair tie downs for residents in wheelchairs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Battery-powered mechanical lifts introduced in 1995</li> <li>▪ Bath gurney lift with adjustable height tub</li> <li>▪ Rolling shower chair</li> <li>▪ Electric-powered controls for hospital beds</li> <li>▪ Powered lift on bus including wheelchair tie downs for residents with wheelchairs</li> </ul>
Work Practices to Reduce Heavy/Awkward Lifting	<ul style="list-style-type: none"> <li>▪ Team lifting Policy—Some clients are designated as two-person assisted for all transfers and lifts. All mechanically lifted clients are assisted by two workers.</li> <li>▪ Job rotation schedule—Resident houses involving heavy care use rotation of post-positions that vary within each week. Can distribute the heavy/awkward lifting exposures through the week.</li> <li>▪ Communicating resident needs and updating status via: <ul style="list-style-type: none"> <li>-Individual Habilitation Plans (IHPs)</li> <li>-Signs posted by client beds indicating their required level of assist</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Team lifting Policy—Total-assist clients weighing 51-120 lbs. require two people to assist when manually lifting clients. However, clients weighing over 120 lbs., require a mechanical lift.</li> <li>▪ Job rotation schedule—Some houses use a job rotation schedule that rotates post-positions every two weeks. <b>This rotation schedule is not designed specifically to distribute the heavy physical workload.</b></li> <li>▪ Communicating resident needs and updating status via: <ul style="list-style-type: none"> <li>-Individual Habilitation Plans (IHPs)</li> <li>-Signs posted by client beds indicating their required level of assist</li> </ul> </li> </ul>

	<b>Rainier School</b>	<b>Fircrest School</b>
<b>Shower Regimen</b>	<ul style="list-style-type: none"> <li>▪ In heavier-care resident houses, showering/bathing responsibilities are provided by one shift of workers. Caregivers from that shift provide daily showers to all clients (more if needed). Caregivers work in two-person teams and shower up to 8 people each day.</li> </ul>	<ul style="list-style-type: none"> <li>▪ In heavier-care resident buildings, caregivers from two different shifts share the client showering/bathing responsibilities. Clients are given showers every other day (more if needed). No caregiver provides more than 2 showers per day.</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>▪ Emphasized communication between staff across shifts, and especially nuances if a client is transferred to a different house.</li> <li>▪ See Chart 1 for WMSDs among direct care providers. There is an obvious downward trend in number of WMSDs among direct care providers at both schools over the years.</li> </ul>	<ul style="list-style-type: none"> <li>▪ See Chart 1 for WMSDs among direct care providers. There is an obvious downward trend in number of WMSDs among direct care providers at both schools over the years.</li> </ul>

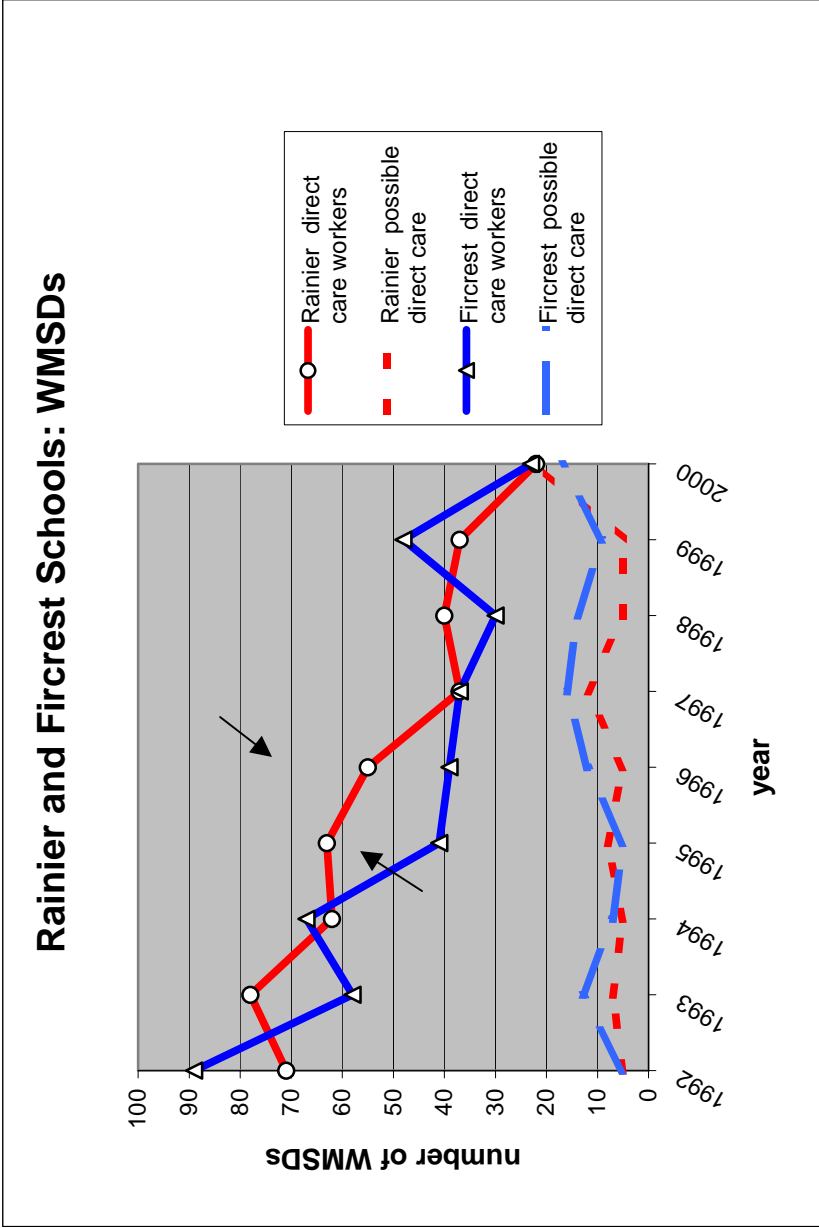


Chart 1

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Rainier direct care workers	71	78	62	63	55	37	40	37	22
Rainier possible direct care	5	7	5	8	5	12	5	5	22
Fircrest direct care workers	89	58	67	41	39	37	30	48	23
Fircrest possible direct care	5	13	7	5	12	16	14	9	17

**direct care workers:** those likely to be involved with physical aspects of resident handling activities. (for example., health aides, LPN's, RN's, nursing aides, occupational therapists, physical therapists, etc.)

**possible direct care workers:** those who are less likely, but could be involved with physical aspects of resident handling activities. (for example, special education teachers, vocational counselors, rehabilitation counselors, teacher aides, etc.)

**all others:** all remaining workers. (for example, food service workers, office workers, truck drivers, maintenance workers, etc.)

## Conclusions and Discussion

1. The nature of the work at residential care facilities involves assisting clients in daily living activities such as bathing, dressing, transferring in and out of bed, repositioning, feeding, etc. Depending on the client population, the caregiver may provide a lot of physical assistance in order to provide this type of care. Rainier School is using effective controls with policy and procedures in place for more than six years. Battery operated mechanical lifts are available to workers with heavy-care clients. Staff has been using modern lift equipment, specific job rotation schedules, a team lift policy, and job specific training to address heavy and awkward lifting. Without these there is far greater risk for WMSDs (especially back and shoulder injuries) impacting employees' health, their ability to go to work, and workers' compensation claims costs.

Mechanical lift devices should be used whenever clients are not able to assist with transfers or cannot weight bear. A client's ability to participate in a transfer may vary over time—including over the course of a single day. As a client's ability to participate declines, staff should be ready to make the appropriate switch from a manually assisted transfer to a mechanically assisted lift whenever it is needed. When handling clients with inconsistent or limited ability to follow directions, staff should err on the side of caution. Staff should also communicate any change of mobility status at the change of the shift.

We did not find high enough exposures to classify the attendant counselor job as a caution zone job or a hazard zone job. However, if staff increases the frequency of the manual client lifts or performs more stand pivot transfers requiring a moderate degree of assist (or more), the result is likely to be different. The load on the body and potential for injury during manual lifts and transfers increases with: client weight, frequency of the lift, distance of the reach, and level of assistance required. Other behavior-based factors like lifting posture, and whether or not twisting is involved also have an effect. Rainier School staff should pay close attention to avoid doing full body lifts manually as this will most likely trigger caution zone and hazard zone job status. This can easily occur during client repositioning activities on the bed or bath gurney.

Caregivers at the Rainier School are required to use a mechanical lift for maneuvering some clients. For others, caregivers have some discretion to use a mechanical device or to perform a manual client transfer. This determination should be carefully evaluated so that staff is not exposed to hazardous lifting situations. To be most protective of workers, caregivers should not be lifting more than 42.5 lbs. Stand pivot transfers that require a moderate amount of assist from a caregiver are very likely to exceed the 42.5 lb. lifting limit. Mechanical lifts are indicated for these types of transfers.

*[NOTE: When a client bears weight, a caregiver does not "lift" the full weight of the client during manual transfers. Only a portion of the client's full weight is "lifted". The 42.5 lb. limit was derived from the lifting calculator of the WA ergonomics rule using likely positions and*



*frequency rates for client transfers: hand position in the range 7-12 inches away from the toes and between waist and shoulder heights, lifts involving at least a 45 degree twist, and lifts performed less often than once every 5 minutes]*

2. There are several suggestions for improving the existing program that are not required by the ergonomics rule:
  - Provide specific training refresher courses for client handling tasks
  - Use an alternate handling method and laundry bin for laundry handling activities,
  - Use an alternate method to empty mop buckets
  - Add additional wheelchair tie-down(s) for the bus, eliminating the lifting of clients into the bus seats.
3. A booklet was compiled as a result of this demonstration project. It is an inventory of equipment and work practices that Rainier School has successfully used to keep heavy and awkward lifting under control. Some additional recommendations are included that are not required for ergonomics rule compliance. This booklet serves as a resource for other residential care facilities or similar workplaces.

# Residential Care

## Ways to Minimize Heavy and Awkward Lifting

October, 2002



## **RESIDENTIAL CARE: Ways to Minimize Heavy and Awkward Lifting**

This booklet is intended to provide some examples to residential care facilities for minimizing heavy lifting of clients. Some of the examples also address awkward back postures involved in work activities. This booklet can assist other types of employers who perform similar client/patient handling activities. Non-behavior based options are mentioned first and are preferred over ones that rely more so on the behavior of each individual to reduce the risk.

A demonstration project plan initially involved assisting a large residential care facility (Rainier School) with compliance issues of the Washington State Ergonomics Rule. Based on two days of observations, the caregiver staff did not appear to have caution zone jobs as defined by the rule. As a result, Labor & Industries ergonomists decided to take an inventory of the ways two large residential care facilities (Rainier School and Fircrest School) have successfully reduced the risk levels of heavy and awkward lifting. This booklet illustrates this inventory.

There is still potential for employees to reach caution zone levels of exposure and even hazard levels. In such cases, ergonomic awareness education and further assessment to determine a WMSD hazard is necessary. Each employer is responsible to make risk factor exposure determinations in their own workplaces.

[NOTE: A comprehensive approach is key to having a successful injury prevention program. Equipment by itself is not enough. Appropriate and timely training, policies & procedures, and management commitment all play vital roles.]

### **Equipment /Tools to Reduce Heavy and Awkward Lifting:**

1. Battery-powered mechanical assist



2. Bath gurney lift with height adjustable tub



3. Shower chair



#### 4. Hospital bed with electric powered controls



*Adjust the bed height whenever needed so that the caregiver can be in a good working position reducing the amount of time in awkward positions (especially back bending) when assisting clients who are in bed. This may include activities such as dressing clients, washing clients, performing pericare, changing incontinence pads, changing the linen, or repositioning clients. It is important to adjust the bed height to bring the resident closer to the caregiver before beginning these activities, especially repositioning. Repositioning clients in bed puts the most strain on the low back. The caregiver will more likely use the adjustment control if it is within easy reach.*

#### 5. Bus lift for outings and wheelchair tie downs



## Other Ways to Reduce Heavy and Awkward Lifting:

### 6. Team lifting Policy

Some clients always require two people to assist with transfers. This is designated on signs over the beds and in the Individual Habilitation Plans (IHP). Additionally, there is a two-person lifting policy that instructs staff to have two people present whenever using a mechanical device.



### 7. Training

Nine days of orientation training occurs when a new employee is first hired. During that time employees receive training in a number of areas including how to transfer clients and how to deal with combative clients. In addition to inservice training, physical and occupational therapists provide employee training for transfers, lifting, and special equipment as needed. Specific on-the-job training is given to employees whose clients require use of a mechanical lift. There are written policy and procedures for lift and transfer techniques, one-person assisted transfers, and two-person assisted transfers. An in-house training video was made demonstrating these transfer techniques.

### 8. Job Rotation

The supervisor schedules 4-5 rotating "post positions". A range of duties and specific clients are assigned to each post position. Some clients require greater physical assistance and care than others. The workload is distributed among the post positions so that one day a caregiver is assigned to Post Position #1, and on subsequent days, will be assigned to the other post positions. Because of the job rotation schedule, the caregiver does not work in the heavy care post positions on an every day basis. The maximum number of times a caregiver will work in the same post position is twice in a given week.



**Example of a post assignment schedule**

<b>Employee Name</b>	<b>S</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>TH</b>	<b>F</b>	<b>S</b>
Charge person	4	4	4	4	4	x	x
Employee A	2	x	x	1	2	4	4
Employee B	x	1	5	2	5	3	x
Employee C	x	x	3	5	3	5	2
Employee D	1	3	x	x	1	2	3
Employee E	5	2	2	x	x	1	5
Employee F	3	5	1	3	x	x	1

Numbers within the cells refer to a specific post assignment

Day, evening, and night shifts have different responsibilities. For example, some of the responsibilities of the day shift include: ensuring clients are dressed and groomed; assisting clients out of bed or repositioning them as needed; assisting clients with two meals. Some evening shift responsibilities include: assisting clients with one meal; showering clients; and cleaning tasks.

#### 9. Individual Habilitation Plan (IHP)

These are required written plans that are formally written each year per client. They are updated as needed throughout the year. The IHP provides details on mobility status and client needs. It provides details such as: mobility status in indoor and outdoor environments; whether or not it involves wheelchair use or walking; specific equipment needs (gait belt, walker, safety straps, etc.) with the reasons for their use; level of assistance the client needs for transfers, toileting, and bathing; and indication for seizure disorder precautions. By looking at the information in the IHP a caregiver will know what level of assist to provide the client in a variety of situations and the type of equipment to use. Knowing what to expect helps prepare the caregiver to safely assist the client and minimize the risk of injury to him/herself. In each house, all caregivers from all shifts will have access to the same information.

#### 10. Signs posted above bed describe what level of assist is required for transfers



(Sign reads: TWO PERSON ASSIST)

#### 11. Communication

Sharing transfer and mobility status information among co-workers is very valuable, especially if a client has transferred to a different house. This should also include client preferences such as how the client prefers to be handled/assisted by the caregiver.






12. Pairing relief or intermittent staff with another caregiver who already knows the client is helpful. This is beneficial because the regular staff member is familiar with the best ways to work with the client.
13. Include staff input in the decision making process before purchasing new equipment. Obtaining equipment on a trial basis prior to purchase is also beneficial.







## RESIDENTIAL CARE: Ways to Minimize Heavy and Awkward Lifting




### Other Recommendations not covered by the Ergonomics Rule:

Current Method	Recommended Control
<p><b>Laundry</b></p> <p>These heavy lifts do not occur with sufficient frequency to be covered by the ergonomics rule.</p>  	<p><i>Consider a different hamper with a platform under the laundry bag to allow easy side access to the bag without having to lift the bag up to clear the hamper. Unloading the bag to a bin with a deeper cut in the wall will also minimize high/awkward lifts of heavy bags.</i></p>   <p><i>Also consider using tilted laundry bins.</i></p> 

## RESIDENTIAL CARE: Ways to Minimize Heavy and Awkward Lifting

Current Method	Suggested Method
<p data-bbox="186 268 365 304"><b>Bus Outings</b></p> <p data-bbox="186 340 852 415">Presently, staff manually lifts some wheelchair-bound clients into bus seats.</p> 	<p data-bbox="889 304 1526 676"><i>Consider having more wheelchair tie down spots on the bus to allow easy transport of at least 3 wheelchaired clients without involving any manual client lifts. Fewer wheelchair-bound clients will go out on outings at one time, however, outings will be much less physically demanding for staff members. Since the bus is shared with other houses with more ambulatory residents, the more numerous standard bus seats are still appropriate for larger group outings.</i></p> 

## RESIDENTIAL CARE: Ways to Minimize Heavy and Awkward Lifting

Current Method	Suggested Method
<p data-bbox="191 279 386 310">Repositioning</p> <p data-bbox="191 342 800 415">Manual lift to reposition client or to position client on bath gurney</p>  <p>The image shows two healthcare workers in a room, one in a dark shirt and one in a white shirt, manually lifting a patient who is lying on a bath gurney. The gurney has a wooden cabinet and a blue handle. The patient is wearing a patterned blanket.</p>	<p data-bbox="873 300 1523 405"><i>Consider using lateral transfer devices or reduced friction slip-sheets to reduce the effort needed to reposition clients in bed.</i></p>   <p>The top image shows a patient lying in a bed, covered with a green lateral transfer device. The bottom image shows a yellow slip sheet with a logo (a circle with an upward arrow) and the word 'slipp' on a blue bedsheet.</p>

For a resource list and description of a variety of patient handling devices, see, “Safe Patient Handling and Movement—Technology Resource Guide” at:

<http://www.patientsafetycenter.com/TechResGuide/TechResourceGuide.htm>